Beyond the Problematic of Legitimacy: Military Influences on Civilian Society

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In the early twentieth century, Max Weber laid down what would eventually become the foundation of the theory of organizations. He did this by exploring the different types of authority relations, which coordinate social action in relatively large corporate groups, that is, groups that display an internal differentiation of roles with respect to authority and power. As is well known, he distinguished three basic types of authority—traditional, charismatic, and rational-legal—in terms of what made the exercise of control within an organization legitimate. That is, Weber stressed the fact that control and coordination of activity involve the issuing of commands, and that these commands express a claim to legitimacy by those who issue them and an acceptance of such claims by those who follow them. In the traditional type, legitimacy derives from the history, real or imagined, of the organization itself, a history embodied in concrete prescriptive and proscriptive rules governing the conduct of the members and defining the status of the leaders. When the relatively routine enforcement of rights and obligations of such traditional order is challenged, that is, when the rules are not followed simply because they have always been followed but rather because

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of explicit recognition that the person issuing commands has a genuine right to do so (partly or wholly due to personal characteristics), we get the second type, charismatic authority. Finally, the rational-legal model is characterized by the fact that the rules needed for coordination and control have been formalized and made less concrete than in the traditional type. Their definitions are general and logically coherent, their jurisdiction explicitly specified, the cases they cover thought out in advance. In addition, authority becomes less personal than in the traditional and, especially, the charismatic types, with legitimacy attached to the role itself quite independently of the personality or history of the incumbents. Legitimacy in this last type emerges from the impersonal order itself.[1]

In this essay, I will be concerned with this last type of authority, that is, characteristic of modern government bureaucracies and other large hierarchical organizations, such as national and international corporations. I am in complete agreement with Weber as to the sources of legitimacy in this organizational form, but I would like to add, following the work of Michel Foucault, that the description of a legitimate order emanating from a formal structure worked out in detail by jurists (and other creators of formal legality) needs to be complemented by a description of the day-to-day exercise of control, an exercise that demands more resources than the recognition of, and compliance with, legitimate commands, or even the use of coercion and physical force as punishment for specific acts of disobedience. There are other, more subtle forms of coercion in which obedience is ensured by the detailed shaping of the very bodily activities that need to be coordinated in a large enterprise and even by the partition and organization of the spaces where such activities take place. These other sources of effective authority, which are more narrowly technical than rational-legal, have quite a different historical origin. As Foucault writes,

> Historians of ideas usually attribute the dream of a perfect society to the philosophers and jurists of the eighteenth century; but there was also a military dream of society; its fundamental reference was not to the state of nature, but to the meticulously subordinated cogs of a machine, not to the primal social contract, but to permanent coercions, not to fundamental rights, but to indefinitely progressive forms of training, not to the general will but to automatic docility. . . . The Napoleonic regime was not far off and with it the form of state that

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[1] Max Weber, *The Theory of Social and Economic Organization* (New York: Free Press, 1964), 329–63.

> was to survive it and, we must not forget, the foundations of which were laid not only by jurists, but also by soldiers, not only counselors of state, but also junior officers, not only the men of the courts, but also the men of the camps. The Roman reference that accompanied this formation certainly bears with it this double index: citizens and legionnaires, law and maneuvers. While jurists or philosophers were seeking in the pact a primal model for the construction or reconstruction of the social body, the soldiers and with them the technicians of discipline were elaborating procedures for the individual and collective coercion of bodies.[2]

Ever since Napoleon changed warfare from the dynastic duels of the eighteenth century to the total warfare with which we are familiar in this century, war itself has come to rely on the complete mobilization of a society's industrial and human resources. While the armies of Frederick the Great were composed mostly of expensive mercenaries, who had to be carefully used in the battlefield, the Napoleonic armies benefited from the invention of new institutional means of converting the entire population of a country into a vast reservoir of human resources. Although, technically speaking, the French Revolution did not invent compulsory military service, its institutional innovations did allow its leaders to perform the first modern mass conscription, involving the conversion of all men into soldiers and of all women into cheap laborers. As the famous proclamation of 1793 reads, "All Frenchmen are permanently requisitioned for service into the armies. Young men will go forth to battle; married men will forge weapons and transport munitions; women will make tents and clothing and serve in hospitals; children will make lint from old linen; and old men will be brought to the public squares to arouse the courage of the soldiers, while preaching the unity of the Republic and hatred against Kings."[3] This proclamation, and the vast bureaucratic machinery needed to enforce it, effectively transformed the civilian population of France into a resource (for war, production, motivation) to be tapped into at will by the military high command. A similar point applies to the industrial, mineral, and agricultural resources of France and many other nation-states. Given the complete mobilization of society's resources involved in total war, it is therefore not surprising that there has been a deepening of military involvement in civilian society in the last two centuries. But in addition to the links between economic, political, and military institutions brought about by war-time mobilizations, there are other links that are older, subtler, but for the same reason more insidious. It is this linkage that must be added to Weber's theory of legitimate authority to yield a more complete picture of the production of obedience in large hierarchical organizations.

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[2] Michel Foucault, *Discipline and Punish: The Birth of the Prison* (New York: Vintage Books, 1979), 169. Hereafter, this work is cited parenthetically as *DP*.

[3] Excerpt from the text of the *levee en mass* of 1793, quoted in William H. McNeill, *The Pursuit of Power: Technology, Armed Force, and Society Since A.D. 1000* (Chicago: University of Chicago Press, 1982), 192.

Let us start with the question of industrial discipline taken in its broadest sense, that is, to include not only the practices of monitoring the performance of workers on the job and punishing them for violation of the rules but also the shaping of their performance via optimized routines. Historians tend to think of Frederick Taylor, the late nineteenth-century creator of so-called scientific management techniques, as the pioneer of labor process analysis, that is, the breaking down of a given factory practice into micromovements and the streamlining of these movements for greater efficiency and centralized management control. But Dutch commander Maurice of Nassau had already applied these methods to the training of his soldiers beginning in the 1560s. Maurice analyzed the motion needed to load, aim, and fire a weapon into its micromovements, redesigned them for maximum efficiency, and then imposed them on his soldiers via continuous drill.[4] Yet, while the soldiers increased their efficiency as a collective whole, each individual soldier completely lost control of his actions on the battlefield. A similar point applies to the application of this idea to factory workers, before and after Taylorism. Collectively they became more productive, generating the economies of scale so characteristic of twentieth-century big business, while simultaneously completely losing control of their individual actions. As Foucault puts it, "Discipline increases the forces of the body (in economic terms of utility) and diminishes these forces (in political terms of obedience)" (*DP*, 138).

But how can we argue for a connection between the daily drilling of soldiers and the industrial disciplining of workers when no direct genealogical link exists between the ideas and practices of Maurice and those of Taylor? We can because the missing link is provided by French and American armories and arsenals in the eighteenth and nineteenth centuries. The story begins in 1765, when a general of the French army, Jean Baptiste de Gribeauval, initiated a series of reforms in the production of French weaponry. The key idea was the creation of military equipment (such as gun carriages) with fully standardized components such that any part produced in any of the different French arsenals would fit a given piece of equipment.

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[4] McNeill, *The Pursuit of Power*, 129.

This ideal of uniformity was born from the need to supply a battlefront with spare parts, a need that would remain unfulfilled as long as skilled artisans (who inevitably introduced idiosyncrasies in their products) were involved in the production process. Skills not only militated against uniformity, they also endowed workers with a certain amount of control over the process, and this, of course, made the enforcement of obedience harder to achieve. Gribeauval's influence was crucial in pushing the organizational changes (consolidated models for all workers to copy, rigid inspections of the process) that were needed to create weapons and other equipment with interchangeable parts. But as historian Merritt Roe Smith writes,

> Gribeauval's influence also manifested itself in another way. As Inspector General of Artillery, he had played an instrumental role in promoting the work of Honore Blanc, a talented armorer who had developed various labor-intensive methods of manufacturing muskets with uniform parts. Favored by Gribeauval's patronage, Blanc had received approval to undertake experiments with the design and manufacture of small arms at several government installations. By the mid-1780's he had tooled the Vincennes arsenal with novel die-forging, jig-filling, and hollow-milling techniques. . . . These innovations held particular interest for American visitors. Thomas Jefferson, while serving as ambassador to Versailles, had visited Blanc in 1785 to witness the way in which the lock components of Blanc's muskets could be randomly interchanged without any fitting or filling. Duly impressed by the demonstration, Jefferson wrote home about the experience and even tried to persuade Blanc to emigrate to the United States. Although the Frenchman declined Jefferson continued to monitor his activities and even shipped six of Blanc's muskets to Philadelphia in 1789. One person who benefited from these diplomatic exchanges was Eli Whitney. Through correspondence and conversation with Jefferson, Secretary of Treasury Oliver Wolcott, and other government officials, Whitney evidently learned of Blanc's work and tried to emulate it in filling his musket contracts with the War Department. Although his efforts fell short of success, he nonetheless became a zealous advocate of the uniformity principle, popularized the concept, and persuaded many politicians to support policies aimed at standardizing the manufacture of military arms.[5]

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[5] Merritt Roe Smith, "Army Ordnance and the 'American System' of Manufacturing, 1815–1861," in *Military Enterprise and Technological Change: Perspectives on the American*

In the mythology surrounding the history of what came to be known as the "American system of manufactures," Whitney plays a central role: the individual entrepreneur pioneering a new laborsaving idea. However, the actual history is quite different, involving as actors not civilians working individually but a network of military officers and weapon factory superintendents working in the context of institutional organizations, such as the Ordnance Department and the Springfield and Harpers Ferry armories. Given that achieving full interchangeability of component parts demanded detailed regulation of every aspect of manufacture and accounting, as well as strict coordination of geographically separated factories, working out the details of the new system of weapon production involved several decades of institutional learning by doing. Two of Foucault's additions to Weber's theory of obedience played a prominent role: *ceaseless inspection* and *permanent registration*, that is, a more systematic means of monitoring compliance with uniform routines and a more systematic way of reporting in writing any departures from the norm as well as the positive results of the use of routines (*DP*, 195–96). This use of writing must be distinguished from its use in the formalization of rules and procedures that Weber discusses. The idea of permanent registration refers to a *logistical* use of writing, that is, its use in keeping track of the minute historical details of the day-to-day running of an organization based on imperative coordination of social activity.

The monitoring of armory operations had to achieve both fiscal and quality control. The former involved nothing more than adopting more sophisticated bookkeeping methods and keeping detailed inventories of weapons and raw materials. This aspect of the question was understood and discussed by Weber as applying to any large economic enterprise with a rational-legal authority structure and was resolved rather rapidly in the present case. But quality control of the product of armories demanded new ideas for the implementation of ceaseless inspection and the enforcement of obedience. As Smith writes, "In 1816, the inspection of finished firearms varied not only from one armory to another but also within the same branches of the same armory. For the most part the procedure consisted in making qualitative comparisons with a pattern arm and its parts. That is, an inspector discovered work defects mainly by eye rather than instrument. . . .

Experience, ed. Merritt Roe Smith (Cambridge, Mass.: MIT Press, 1987), 47. The classical reference on this subject is David A. Hounshell, *From the American System to Mass Production, 1800–1932: The Development of Manufacturing Technology in the United States* (Baltimore, Md.: Johns Hopkins University Press, 1984), chap. 1.

Other than a caliper to check the exterior dimensions of the gun barrel and two plugs to verify the bore, no gauges were used during the inspection."[6] Between 1823 and 1832, on the other hand, novel gauging methods had been introduced at the Springfield and Harpers Ferry armories. Acting as commands frozen in metal, steel gauges replaced the skill of the inspectors in the assessment of the quality of every single part of a weapon during and after the manufacturing process. Inspectors equipped with a master set of gauges could now systematically impose standards and enforce uniformity. The timing of the inspections was made more regular, and written reports registered any deficiencies in the process or the product, the conditions of the buildings and machines, the comparative degree of discipline at different establishments and the performance of supervisory personnel.

Moreover, these innovations were slowly transferred to civilian factories as contracts for arms production began to be granted to outside firms on the basis of their degree of participation in the uniformity system. Later on, by the 1840s, the disciplinary innovations found other channels of diffusion. In some cases, "former ordnance officers . . . assumed managerial posts with various firearms, foundry, and railroad businesses. Far more frequently, however, armory practice was transmitted by workmen who had received their early training at one of the public or private arms factories and subsequently moved to new positions as master machinists and production supervisors at other manufacturing establishments."[7] By the late 1850s, the basic components of the American system could be found in organizations producing everything from sewing machines, pocket watches, and railroad equipment, and, later on, typewriters, bicycles, and many other machined metal products. Although strict interchangeability of parts was not enforced as thoroughly as in armories, ceaseless inspection and permanent registration became an integral part of the means to enforce obedience in all these other places.

The purely military origin of the American system has been challenged by the historian Donald R. Hoke, who argues that, in some cases, the very nature of a product may force the adoption of a given approach on purely technical grounds. In other words, standardization may be adopted to meet certain challenges posed by the efficient production of complex mechanisms quite independently of its effects on obedience. However, Hoke's criticisms fall short. He acknowledges that the basic idea behind the system (a standard model to be copied exactly) was born in eighteenth-century French arsenals and adopted in America through imitation, for example, in the early wooden clock manufacturers operating on the putting-out system (which antedated concentrated factory production). His other examples are all big business and so are not really counterexamples but simply examples of convergence toward disciplinary methods by large hierarchical organizations.[8]

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[6] Smith, "Army Ordnance and the 'American System' of Manufacturing," 61–68.

[7] Smith, "Army Ordnance and the 'American System' of Manufacturing," 77.

At any rate, to argue for a purely military origin of those aspects of the production of docility that are needed to complement analyses in terms of legitimacy is neither necessary nor historically accurate. It is important to locate military organizations within a larger institutional ecology comprising hospitals, schools, prisons, and other organizations where imperative coordination is also practiced. Indeed, another of Foucault's ideas that serves to complement Weber's analyses, the *strict spatial partitioning* of the buildings housing hierarchical organizations, may be more prominent in nonmilitary cases. The enforcement of obedience in modern medical, penal, and educational organizations relies on constant supervision and surveillance, and, to this end, an analytical use of space, in which group concentrations are avoided and individuals are assigned their proper places, becomes functionally necessary. It is true that these organizations had an ideal model in the military camp, which, as Foucault says, "was to the rather shameful art of surveillance what the dark room was to the great science of optics" (*DP*, 172).

And yet other organizations (such as monasteries) also contributed to this art of spatial distributions. It is therefore hard to establish a genealogy of surveillance as an economic operator, that is, to trace the exact origins of the use of space in workshops and factories as a means to enforce new divisions of labor and to articulate workers with machinery. But what can be said is that beyond the intensification of supervision, there was the question of deriving useful knowledge about those being supervised, and this went beyond what the cellular use of space as practiced in monasteries could achieve. Speaking of the factories that began to appear in France at the end of the eighteenth century (specifically, Christophe-Philippe Oberkampf's textile factory at Juoy, made up of several spatially partitioned workshops), Foucault writes, "By walking up and down the central aisle of the workshop, it was possible to carry out a supervision that was both general and individual: to observe the worker's presence and application, and the quality of his work; to compare workers with one another, to classify them according to skill and speed; to follow the successive stages of the production process" (*DP*, 145).

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[8] Donald R. Hoke, *Ingenious Yankees: The Rise of the American System of Manufacturers in the Private Sector* (New York: Columbia University Press, 1990).

As Foucault goes on to argue, modern hospitals, schools, barracks, prisons, and workshops became, through the very architecture of their buildings, as well as a special use of light to provide enhanced visibility, veritable "behavioral microscopes." And this, in turn, made possible the production of certain bodies of knowledge, from clinical medicine to child psychology, and, later, in the nineteenth century, the scientific management techniques of Taylor (*DP*, 224). Weber had already pointed out that the rational-legal form of imperative coordination involved knowledge as a crucial component. But this referred to the technical competence of those occupying official positions (accountants, engineers, managers, and so on) as a source of their claims to legitimacy. That is, it was in terms of the technical knowledge these officials possessed, on the basis of which they had been appointed to that office in the first place, that they could give orders with a given degree of credibility.[9] But Foucault adds to this a second role for knowledge that is not concerned with the legitimacy of those who issue commands but with the behavioral details of those who must follow them.

This transformation of the spatial techniques of religious organizations also applies to their temporal techniques. Monasteries pioneered the use of timetables as a way of organizing sequences of activities to enforce moral regulations that forbade the wasting of time. But in military organizations, these were transformed into efficient means to impose a temporal order over activities, both to increase their efficiency as well as to decrease whatever amount of control individual soldiers had over them. What late eighteenth-century military regulations defined "is not a timetable—the general framework for an activity; it is rather a collective and obligatory rhythm, imposed from the outside; it is a 'programme'; it assures the elaboration of the act itself; it controls its development and its stages from the inside" (*DP*, 152). What Foucault refers to as a "programme" may also be called a "routine." There is a parallel here with Weber, who speaks of routines as that which distinguish the rational-legal and traditional types of authority from the charismatic type. As he writes,

> Both rational and traditional authority are specifically forms of everyday routine control of action; while the charismatic type is the direct

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[9] Weber, *The Theory of Social and Economic Organization*, 335.

> antithesis of this. Bureaucratic authority is specifically rational in the sense of being bound to intellectually analyzable rules; while charismatic authority is specifically irrational in the sense of being foreign to all rules. Traditional authority is bound to precedents handed down from the past and to this extent is also oriented to rules. Within the sphere of its claims, charismatic authority repudiates the past, and is in this sense a specifically revolutionary force. . . . The only basis of legitimacy for it is personal charisma, so long as it is proved; that is, as long as it receives recognition and is able to satisfy the followers or disciples.[10]

But Foucault adds to this legitimizing role of routines (in the first two types of imperative coordination) a disciplinary role. If the behavior of those who are to follow commands is carefully studied, so that any trace of skill or personal mastery is removed and replaced by optimized routines, regardless of their attitude toward legitimate authority (that is, regardless of whether they believe in the intellectual merit or the historical sanctity of a set of rules), they have thereby been rendered more obedient. This was, in fact, the real effect of Taylor's time studies of labor processes (soon to become time-and-motion studies in Frank Gilbreth's hands). While in his mind the effect to be achieved was one of legitimacy—the bypassing of class antagonisms by the introduction of "science" in the factory—he had been exposed to the new approach to industrial discipline in armory practice via close friends and had absorbed the military officers' strong dislike for disobedience. Hence, even when his optimized procedures did reduce the physical effort needed to carry out a given task, the elimination of flexible skills and their replacement by rigid routines had, as a result, a net transfer of control of the production process from workers to managers. As Smith writes,

> When labor was mechanized and divided in nineteenth-century arms factories, individual work assignments became more simplified while the overall production process became more complex. Coordinating and controlling the flow of work from one manufacturing stage to another therefore became vital and, in the eyes of factory masters, demanded closely regulated on-the-job behavior. Under these conditions the engineering of people assumed an importance equal to the engineering of materials. As conformity supplanted individuality in the workplace, craft skills and other preindustrial traditions became

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[10] Weber, *The Theory of Social and Economic Organization*, 361.

> a detriment to production. To those who planned and orchestrated the uniformity system, such changes, though initially unanticipated, seemed fully compatible with their ideas of rational design and with their paternalistic concepts of Christian stewardship. To those who worked under the system, the new regime represented a frontal assault on valued rights and privileges. The resulting confrontations between labor and management over the control of work highlight fundamental tensions that seethed beneath the glowing veneer of industrial achievement.[11]

Many more examples could be added to illustrate the influence of the military on the disciplinary methods used by economic organizations to ensure the obedience of their members over and above their beliefs in the legitimacy of commands. The examples multiply in the twentieth century, as Taylorism and related time-and-motion studies propagated throughout industry with the spread of mass production techniques and the use of the machinery itself in assembly lines to pace and discipline workers. The links between organizations also proliferated, particularly after the work of scientists in World War II proved to the military that science played a crucial role in future warfare. Technology, too, added new twists to the story. After computers had come into being through the twin channels of scientific research and the intense urgencies of warfare, they were added to the growing arsenal of disciplinary resources.

To conclude this essay, one more example may be given to illustrate the significance of computers: the system of machine-part production known as Numerical Control. While the methods developed in nineteenth-century arsenals had already increased uniformity and centralized control in the production of large quantities of the same object, this left untouched those areas of production that create relatively small batches of complex machine parts. Here the skills of the machinist were still indispensable as late as World War II. During the 1950s, the U.S. Air Force underwrote not only the research and development of a new system to eliminate the machinist but also the development of software, the actual purchase of machinery by contractors, and the training of operators and programmers. In a contemporary Numerical Control system, after the engineer draws the parts that need to be produced, the drawings themselves are converted into data and stored on punch cards, or electronically. From then on, all operations—drilling, milling, lathing, boring, and so on—were performed automatically by computer-controlled machines. Unlike mass production techniques, where this automatism was achieved at the expense of flexibility, Numerical Control systems adapted the system for the production of a new set of parts through a relatively simple change in software (not hardware).[12] Yet, the disciplinary effects on the population of workers were very similar in both cases. Most importantly, these effects were produced in a form that escaped the problematic of legitimacy and hence have not been adequately analyzed, let alone critically evaluated. It is in this latter task that Foucault's ideas will prove themselves invaluable.

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[11] Smith, “Army Ordnance and the ‘American System’ of Manufacturing,” 79.

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[12] David Noble, "Command Performance: A Perspective on Military Enterprise and Technological Change," in *Military Enterprise and Technological Change*, 329–46.